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$$A = 0.39 \cdot V_{pre} + 3.5 \quad \text{connectors}$$

$$B = 0.36 \cdot V_{pre} + 1.5 \quad \text{connectors}$$

$$C = \#Seeds - 0.26 \cdot V_{pre} - 14.8 \quad \text{connectors}$$

Simulation phase: given the statistical nature of these relationships, we reserved one cartridge of each connectors type to assure that we would not run out of them when the surgical procedure took place. A retrospectively application of these formulae yielded that we would had used only those corresponding A, B, C reserved cartridges in 14%, 19% and 12% of the procedures. We would have had only to add that spent cartridge when placing the following order.

Conclusions: When LDR-brachytherapy seeds implant with needle loading on demand technique is used the quantity of the different types of seed connectors can be statistically expressed in terms of the preoperative prostate volume. With enough experience in the implant technique and preoperative prostate volumetric study it is possible to mark out institution-specific bounds to each of these quantities. It optimizes the preoperative prediction of seeds connectors, seeds and needles that will be used and reduces costs in material and storage.

EP-1610

Twelve years treatment results of LDR brachytherapy for prostate cancer in Turkey

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Purpose/Objective: To analyze the twelve years outcomes of I-125 LDR brachytherapy in Turkish men with low-intermediate risk localized prostate cancer.

Materials and Methods: Between 2000-2004, 139 patients treated with LDR brachytherapy were analyzed retrospectively. Brachytherapy was monotherapy in 127 pts.and used with external beam radiotherapy in 12 pts. Four pts excluded from study due to protocol deviation. 135 pts were analyzed for disease control and survival. For all the pts preplanning was done in treatment conditions. During the aplication real time planning was used. Four- six weeks after application postplanning dosimetry was done with CT and MR images. In dosimetry D90, V100, V150, V200, V250 for prostate; V100, V150 for urethra ; V100, dose at 4 cc for rectum were evaluated. Survival curves were calculated using the Kaplan- Meier method, and the significance was calculated by the log-rank test. To compare the prognostic factors Chi- square test was used.

Results: The median follow-up time was 88 months (6-170 months). The median age of 135 pts. Was 65 years (44-81 years). In pts 64.4 % of them were in low risk and 35.6 % in intermediate risk. The mean PSA value at diagnosis was 8,12 ng/ml (SD ±6,33). In 43.2 % of the pts received androgen deprivation for 3 months before procedure . T stages were T1c in 12 pts, T2a in 64 pts, T2b in 53 pts and T3 in 6 pts. During procedure median 28 (18-35) needles and 85 (65-110) seeds at 0.49 U/seed(0.43-0.50) were used. Prescribed dose was set at 145 Gy in monotherapy and 110 Gy in combined treatment. Treatment results were given in table 1.

Table 1: The 5, 10, 12 years outcomes of I-125 LDR brachytherapy in Turkish men with low-intermediate risk localized prostate cancer.

	5 years (%)	10 years (%)	12 years (%)
PSS	100	%100	%100
OS	96.1	90.5	90.5
DFS	99	88.8	81.4
Recurrence	0	4.4 (6pts)	5.9 (8 pts in 14 years)
OS			
low risk (87pts)	95.4	93.2	93.2
intermediate risk (48pts)	97.4	87.7	87.7
			p: NS (0.896)
DFS			
low risk (87pts)	98.4	86.7	86.7
intermediate risk (48pts)	100	92.2	73.7
			p: NS (0.760)
OS			
T1-2a (76)	98.4	96.1	96.1
T2b (53)	91.9	79.8	79.8
T3 (6)	100	100	100
			p: 0.133
DFS			
T1-2a (76)	100	94.4	94.4
T2bc (53)	97.2	81.2	67.6
T3 (6)	100	80	80
			p: NS

PSS: Prostate spesific survival , OS: Overall survival , DFS: Disease free survival, NS: Non significant

Conclusions: Our results are in concordance and comparable with other reports on I-125 LDR prostate brachytherapy.

Electronic Poster: Brachytherapy track: Anorectal

EP-1611

HDR intestinal brachytherapy as a salvage treatment in rectal adenocarcinoma patients

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Purpose/Objective: To analyze efficacy and toxicity profile of intestinal HDR brachytherapy in rectal Adenocarcinoma patients after tumorectomy as a salvage treatment.

Materials and Methods: Between April 2009 and July 2014 15 patients (pts) with adenocarcinoma underwent conformal HDR brachytherapy (HDR-BRT) with a temporary intestinal implants (2-7 catheters). The mean age of pts was 70,47 (range 45-87). Twelve of patients received 30 Gy in 5 days (3 Gy per fraction) twice daily. One patient received 24 Gy in 6 days (4 Gy per fraction). One patient received 10 Gy in single fraction. One patient received 15 Gy in five days (3 Gy per

fraction).The dose was calculated based on 3D CT-planning using Oncentra Master Plan and PLATO planning software. Dose volume constrains which were analyzed for target were: V100, V150, V200, D90. Patients were monitored weekly during radiotherapy and 1,3,6,9 and 15 months after the end of the treatment and then at three months interval. Follow-up visit included physical examination, images: ultrasound of abdomen and chest X ray and CEA value assessment. The acute toxicities were graded according to the EORTC/RTOG scales.

Results: Median follow up was 34,4 months (range 18-58). Three local recurrences were observed. One patient died of intercurrent disease 12 months after the implantation which was unrelated to the brachytherapy. Grade 1 and 2 rectal toxicity was reported in ten patients (66,7%). Four patients (26.6%) reported Grade 3 toxicity. One patient (6,7%) required hospitalization and surgical intervention. The most common rectal symptoms were pain, bleeding, thin stool, rectal urgency and frequency and acute proctitis. However no fatal toxicity was observed.

Conclusions: HDR brachytherapy is a valid anal sphincter sparing treatment modality to carefully selected patients and can be successfully used for salvage in patients with no other treatment options. The treatment was well tolerated by majority of patients with acceptable degree of acute toxicities. Overall survival data need longer follow-up.

Electronic Poster: Brachytherapy track: Miscellaneous

EP-1612

Intraluminal radiotherapy in the treatment of inoperable cancer of the esophagus

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Purpose/Objective: develop a method of intraluminal radiotherapy for esophageal cancer.

Materials and Methods: In RCRC 52 inoperable patients with esophageal cancer were treated with the use of 1 step method intraluminal radiotherapy esophagus. In 63.4% of patients - constrictive inoperable esophageal cancer, at 36.6% - a recurrence of esophageal cancer after treatment. Morphologically, the tumor shows squamous cell carcinoma (55.8%) and adenocarcinoma of varying degrees of differentiation (44.2%). In 84.6% of cases of marked dysphagia II-IV degree. Conducting topometricheskogo planning endovascular office allows you to set the Intrastat for the intraluminal radiotherapy in residual lumen of the esophagus to 1mm. Irradiation is performed with high activity sources Ir192. Dosing at 1 cm from the active line, the length of the active line 5-16sm. Treatment is carried out in 3 fractions with an interval of 6-7 days ROD = 7Gr SOD = 35games. In 96.2% of patients treated as outpatients conducted. After a 2-week break in 80.8% of cases to pursue further therapy: 52% rate teletherapy ROD = 2g = 80iGr to SOD, in 28.8% of cases in combination with chemotherapy. Follow-up of 4-26 months. In all cases observed treatment effect (tumor resorption in 23.1% - the complete destruction of the tumor, reducing the severity of dysphagia). Complications: 23.1% of the cases of different severity of esophagitis (docked conservative), 1.9% (1 patient) - esophago-tracheal fistula (setting 'covering' nitinol stent).

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Carrying on 1 stage esophageal intraluminal radiotherapy reduces the severity of dysphagia, which contributes to the correction of metabolic disorders and improve the overall condition, creates the possibility of external beam radiotherapy and chemotherapy in patients previously considered incurable, and consequently improves the results of treatment.

Conclusions: Intraluminal radiotherapy of the esophagus is a highly effective and safe treatment for patients with inoperable cancer of the esophagus, especially combines with dysphagia tumor genesis, significantly improving the quality of life and its duration in these patients.

EP-1613

Depth determination of skin cancers treated with superficial barchytherapy: ultrasound vs. histopathology

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Purpose/Objective: The purpose of this study is to compare high frequency ultrasonography (HFUS) and histpathologic assessment done by punch biopsy to determine depth of basal cell carcinoma (BCC), in both superficial and nodular BCCs prior to brachytherapy treatment.

Materials and Methods: This study includes 20 patients with 10 superficial and 10 nodular BCCs. First, punch biopsy was done to confirm the diagnosis and to measure tumour depth (Breslow rate). Subsequently, HFUS was done to measure tumour depth to search for correlation of these two techniques.